HDMI CEC Control

After connecting the camera with TV-System, you may view pictures taken with the camera on the TV screen and operate the camera with your TV remote control to view and edit all images.

	HDMI CEC Control	
USB		PC
	Off	
TV-S	On	NTSC
HDMI		Off
: Se		: Exit
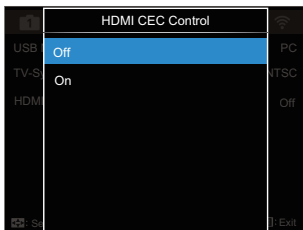
⊜ It is required that the TV-System supports HDMI CEC.

⊜ After the camera is successfully connected with TV-System, other buttons of the camera except the Power button cannot work, with the LCD staying dark.

⊜ Please refer to TV manual for relative settings of TV-System.

Introduction on Icons

1. ⓘ Info Hiding/Display

2. 🔍 Zoom-in

   ⊕ : Zoom in Images

   ⊖ : Zoom out Images

3. Rotate Images

   ↺ : Only Turn Left

4. ▦ Image Index

   ▦ : 5*3 Index Playback

   ▦ : 10*5 Index Playback

   ▦ : 3*1 Date Folder Index

   ▦ : 5*3 Cont. Group Index

5. ⤺ Back

6. ▣ Play Slide Show

7. ◁▯▯ ▯▯▷ Button for Switching Between Previous and Next Images

8. 🎞 Videos

9. Movie Length:00:00:00

10. 🖵 Cont. Group File

11. ⌐ First Image Mark

12. 000/000:Current Sorting/Total Number of Images in Group

13. ✓ :Confirm Effect

14. ✗ :No Change

The following operations are available during HDMI CEC playback:

• 1:1 Single Playback

• Zoom-in Playback

• Rotate

• Index Playback

• Cont. Group Playback

• Slide Show Playback

• Video Play

• Panoramic File Play

• Image Edit

⊜ Pressing the four-color button on remote control can enable relative functions displayed on the TV-System screen.

Remote control 🟥 🟩 🟧 🟦

TV-System 🔍 ⬛ ⓘ ↩
Red Green Yellow Blue
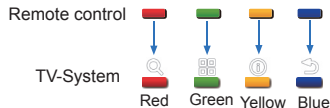
1:1 Single Playback:

Press the left and right arrow buttons to switch among images.

Zoom-in Playback:

Under the 1:1 Single Playback Mode, press the red button to zoom in images; press the red and green buttons on remote control to zoom out images.

Rotate:

Under the 1:1 Single Playback Mode, press the blue button to rotate single picture.

Index Playback:

Under the 1:1 Playback Mode, press the green button to enter index playback; press the central button to enter image selection and then the arrow buttons to select files you want. Press the central button again to back to the 1:1 Single Playback.

Under the 5*3 index playback mode, press the green button to enter index selection and then the left and right arrow buttons to select 🔲, 🔲, 🔲, and 🔲. Press the central button again to confirm your selection.

Cont. Group Playback:

Under the 1:1 Single Playback Mode, press the central button to start playing images in Continuous Group.

If no images in the camera's Cont. Group, a prompt of no pictures will appear if you select 🔲 on the index playback interface.

Slide Show Playback:

Under the 1:1 Single Playback Mode, press the down arrow button to enter Slide Show Playback. While playing, you may press the left and right arrow buttons to directly switch between previous and next images and the central button to end playing.

Video Play:

Under the 1:1 Single Playback Mode, select a video and then press the central button to start playing. During playback, you may use the arrow buttons and the central button to perform operations such as fast forward/backward, pause, frame forward/backward, back to play, etc. according to prompts on the screen.

Panoramic File Play:

Under the 1:1 Single Playback Mode, select a panoramic file and then press the central button to begin playing.

Image Edit:

Multiple edit can be repeated under Image Edit Mode. Only one picture is saved finally.

Under the 1:1 Single Playback Mode, select a picture and then press the up arrow button to enter image edit and start detecting face.

Press the up arrow button to do HDR editing.

Press the down arrow button to delete one picture.

Press the left and right arrow buttons to edit the color. 12 effects in total for selection.

The following Beautifier Touch-Up functions cannot be enabled until a face is detected. You may press relative color buttons to edit.

 : Skin Soften

 : Eye Enlargement

 : Eye Brightening

Availability of edit functions corresponding to each type of file (O : Available; X : Not available)

	HDR	Color	Beautifier	Delete
Normal (face)	O	O	O	O
Normal (no face)	O	O	X	O
Panorama	X	X	X	O
Video	X	X	X	O

Function	Full Size Playback	Zoom-in Playback	Index Playback	Video Play	Cont. Group Play	Panoramic File Play
Zoom In	O	O (Movable to four directions during zoom-in)	X	X	X	X
Zoom Out	X	O	X	X	X	X
Rotate	O (turn left only)	X	X	X	X	X
Play Slide Show	O	X	X	O	O	O
Edit Image	O[*1]	X	X	O	O	O
Info Hiding/ Display	O	O	X	O[*2]	O[*2]	O[*2]
Delete	O	X	X	O[*3]	O[*3]	O[*3]

[*1] Beautifier options will not appear until a face is detected.

[*2] Available before and in playing and during pause.

[*3] Deleting one file will not work until the camera enters image edit mode.

APPENDICES

Product Specifications

(≣) Design and specifications are subject to change without notice.

		Type	1/2.3" BSI CMOS
Image Sensor		Effective Pixels	20.68 Megapixels
		Total Pixels	21.14 Megapixels
Lens	Focal Length		4.2mm (Wide) — 281.4 mm (Tele)
	35 mm Film Equivalent		23.4 mm (Wide) — 1568 mm (Tele)
	F number		F2.9 (Wide) — F6.7 (Tele)
	Lens Construction		14 groups 18 elements
	Optical Zoom		67x
	Focusing Range		Normal: (Wide) 50 cm ~ ∞, (Tele) 250 cm ~ ∞; Macro: 1 cm ~ ∞ (Wide Only)
Autofocus System			TTL Autofocus
Electronic Viewfinder			Yes (-3 ~ +1 diopter)
Anti-Handshake			Optical Image Stabilization
Digital Zoom			4x Digital Zoom (Combined Zoom: 268x)

Number of Recording Pixels	Still Image	(4:3) 20MP: 5184 × 3888 10MP: 3648 × 2736 5MP: 2592 × 1944 3MP: 2048 × 1536 0.3MP: 640 × 480	(3:2) 18MP: 5184 × 3456	(16:9) 15MP: 5120 × 2880 2MP: 1920 × 1080
	Movie	1920 × 1080 (30fps), 1280 × 720 (60fps), 1280 × 720 (30fps), 640 × 480 (30fps), High-Speed Movie: 640 × 360 (120fps)		
Image Compression		Best, Fine		
DCF, DPOF (Ver1.1) Support		Yes		
File Format	Still Image	JPEG (Fine, Standard), RAW, RAW+ JPEG (Fine)		
	Movie	MOV [Image: H.264; Audio: Linear PCM (Stereo)]		
Shooting Modes		Auto Mode, Program AE, Shutter priority, Aperture priority, Manual Mode, Face Beautifier, Wireless Mode, Scene Mode, Movie Mode, Custom Settings		
Scene Mode		Auto Scene, Panorama Mode, Handheld Night, Multi Exposure, Cat/Dog, Snow, Party, Sport, Night Portrait, Portrait, Children, Landscape, Sunset, Fireworks		
Detection Features		Face, Smile, Blink, Cat, Dog		
Photo Touch-Up		Red-Eye Reduction, Skin Soften, Eye Brightening, Eye Enlargement		

HDR		Yes
Scan Panorama		Up to 360°
LCD	Display	3.0 inch (920k Pixels)
	Angle Adjustment	Yes
Image Auto Rotation		Yes
ISO Sensitivity		Auto, ISO100/200/400/800/1600/3200
Focus Mode		Single AF, Continuous AF, Object Tracking, Manual Focus
Focusing Area Selection		Single Area Focusing, 25-Area-Focusing, Face Detection, Manual Area Focusing
Exposure Metering Method		Artificial Intelligence AE (AiAE), Center-Weighted Average, Spot (Fixed to Center of Frame), Face AE
Exposure Control Method		Program AE (AE-Lock Available), Shutter Prior AE, Aperture Prior AE
Exposure Compensation		± 3 EV in 1/3 Step Increments
Shutter Speed		1/2000 ~ 30 Seconds
Continuous Shooting		Yes
Playback Modes		Single, Index (9/16 Thumbnails), Slide Show, Date, Burst Shooting, Zoom (Approx. x2 ~ x8)

White Balance Control		AWB, Daylight, Cloudy, Fluorescent, Fluorescent H, Incandescent, Manual WB, Color Temp. (1900K ~ 10000K)
Flash	Flash Method	Pop-up (Auto)
	Flash Modes	Force Off, Fill Flash, Flash Auto, Red-Eye Reduction, Slow Sync., Slow Sync. + Red-Eye Reduction
Recording Media		Internal Memory: Approx. 15MB
		SD/SDHC Card (Up to 32GB Support) [MMC Card Not Supported]
Multi-Language Support		11 Languages
Jacks		AV-OUT/USB 2.0 (Micro 5 pin USB), HDMI (Type D)
Wireless		Yes
Remote Viewfinder		Yes (via iOS/ANDROID Smart Device)
Power		Rechargeable Li-ion Battery LB-070, 7.4V 1020mAh, In-Camera Charging
Shooting Capability (Battery Performance)		Approx. 400 Shots (Based on CIPA Standards)
Operation Environment		Temperature: 0 ~ 40°C, Humidity: 0 ~ 90%
Dimensions (W × H × D)		Approx. 125.9 × 89.0 × 113.6 mm (Based on CIPA Standards)
Weight		Approx. 602g (Body only)

Prompts and Warning Messages

Message	Description	Action
Warning! Battery exhausted.	Camera battery is depleted. It is a warning indicating the camera is going to shut off.	Charge battery or replace with a charged battery.
Built-in memory error!	An error has occurred in the built-in memory.	Try shutting the camera off and turning it on again.
Warning! Do not turn off your camera during update!	The message appears during the firmware update process.	The message disappears after the camera update and restart.
Battery temperature is too high.	Battery has reached a temperature that is not ideal for operation.	The message will disappear after 2 seconds. Let the battery cool before attempting to use the camera again.
Please update firmware after the battery is fully charged!	The firmware cannot be updated when power is insufficient.	Charge the battery fully before reattempting to update firmware.

Message	Description	Action
Cannot change settings under this mode.	Appears during shooting mode if a function can not be set by rotating the function ring.	Choose a different mode in order to change settings.
Improper alignment. Please try again.	The offset is too big for panorama shooting.	Remove the message after 2 seconds and return to shooting.
Connection Failed!	Failure to connect to PC, Printer, or TV-system.	Remove cable, reinsert cable, and retry connection
In this capture ******** Still size limited to ** M	After choosing the image size in the Function Ring (Smart), this message may occur when the still size limit is reached.	Remove the message after 2 seconds and return to shooting.
Capture reached maximum limit	Press the shutter to capture images in recording a video. If the number of images captured exceeds 15, there will be a prompt if you press the shutter again.	The message will disappear in 2 seconds with no influence to video recording.

Message	Description	Action
Write Protect !	The memory card is locked.	Turn off camera and remove SD card. Slide tab on the side of card to unlock.
Card Full !	The memory of the SD card is full.	Either delete photos or videos to create room on the card, or replace with another card that has available memory.
Memory Full !	The camera's internal memory is full.	Erase files or insert a memory card that has available memory.
Exceeded maximum folder number.	The folder number in the card exceeds the maximum folder number (999).	Copy the data to your PC, and format the memory card.
Card Error !	The card cannot be recognized after being formatted.	Check that the SD card is compatible with the camera.
Card is not formatted.	An error has occurred with the memory card.	Format the memory card. This will erase all data on the card; be sure to copy the data from the card onto another device if you wish to keep it.

Message	Description	Action
Slow access	When a card lower than Class 4 is recording movie above HD, it may be accessed slowly and the recording will not be continued.	Replace SD card with a Class 4 or higher card.
Cannot write to SD card.	The camera cannot write to the SD card.	Turn off the camera. Remove and reinsert the SD card and turn the camera on to try again. Check if the SD card is in a locked position, or if the memory is full.
No Picture!	When the play button is pushed and there are no files on memory card or in camera.	The message will disappear after 2 seconds and return to previous screen.
No continuous group file.	When the camera switches from Playback Mode to Cont. Playback Mode, and there are no continuous group files, this message will be displayed.	The message will disappear after 2 seconds and return to Thumbnail 3x3 mode.
No Red-Eye Detected!	No red-eye is detected when selecting Red-Eye Removal in Playback Touch-up.	The message will disappear after 2 seconds and return to the touch-up menu.

| Message	Description	Action
Too many pictures for fast processing.	During Playback by Date, the images exceed specifications so it is not possible to play by date.	The message will disappear after 2 seconds and return to Thumbnail 3x3 mode.
Unable to recognize files.	The format of the file viewed is not supported or the file is damaged and cannot be recognized properly.	This message will only disappear after the file is deleted.
Protected! Undeletable!	The file is protected and cannot be deleted.	Unlocked file under "Protect", and make sure SD card is unlocked.
This image cannot be edited.	The file format does not support editing or the edited file cannot be edited again.	The message will disappear after 2 seconds and return to the original image.
Cannot edit because no face detected!	A face cannot be delected in the image in the touch-up menu.	The message will disappear after 2 seconds and return to the touch-up menu.

Troubleshooting

Problem	Possible causes	Solution
Camera does not turn on	■ The battery has been depleted. ■ The battery is not inserted correctly.	■ Replace the battery. ■ Correctly reinstall the batteries.
Camera turns off suddenly during operation	■ The batteries have been depleted.	■ Replace the battery. ■ Make sure the camera is actually shutting off and not entering Power Save Mode, where the LCD will turn off after the camera has been idle for a period of time.
The picture is blurry	■ Camera shakes while taking a picture.	■ Turn on OIS Feature. ■ Please use tripod for high magnification (above 15X) optical zoom. If you are holding the camera, be sure to use both hands.
Images and video files cannot be saved	■ The memory card is full. ■ The memory card is locked.	■ Use another memory card or delete unnecessary files. ■ Unlock the memory card.

Problem	Possible Causes	Solution
Images will not print from the connected printer	■ The camera is not connected to the printer correctly. ■ The printer is not PICTBRIDGE™ compatible. ■ The printer is out of paper or ink. ■ The printer paper is jammed.	■ Check the connection between the camera and printer. ■ Use a PICTBRIDGE™ compatible printer. ■ Load paper into the printer or replace the ink cartridge in the printer. ■ Remove the jammed paper.
Saving data to memory card is slow	■ Using a memory card below Class 4 may result in slower recording times.	■ Use a memory card with write Class 4 or higher to improve performance.
Cannot write to the memory card	■ The memory card has been locked.	■ Release the write lock of the memory card or replace with another card.
Too many movies to process	■ The number of pictures or folders in the memory card exceed the specifications, so the playback of data folder can not be displayed.	■ Delete unwanted files.

When shooting with stacked filters attached, the corners of the photo may turn dark (vignetting effect) because the filter holder blocks light from reaching the camera image sensor; especially, at wide angle zoom control settings. Please take test shots and review the results when using stacked filters. (Filter size : Φ52mm)

Please enter the new password on smart device after changing wireless network password. Some models of smart device will remember the wireless network password previously entered, so please clear the old password on smart device manually before connection (For different models, this operation may be varied, please subject to your user manual).
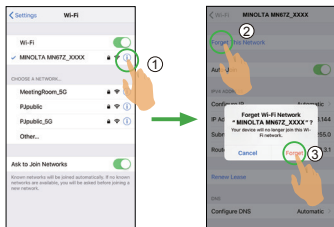
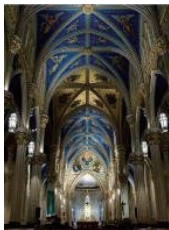iOS System   ANDROID System

HDR- High Dynamic Range

HDR captures three photos taken at different exposure levels and combines them into one photo. This optimizes all the details of the object or scene in the photo. Even the features in darker areas can be viewed clearly. (The following pictures are an example of HDR composition.)
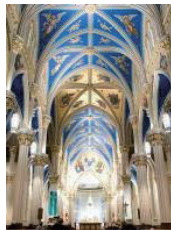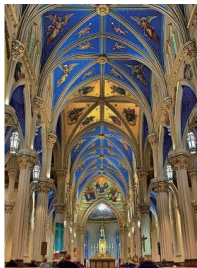
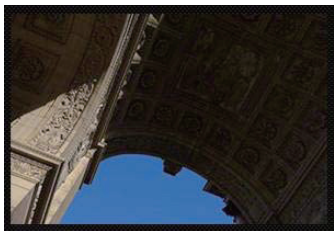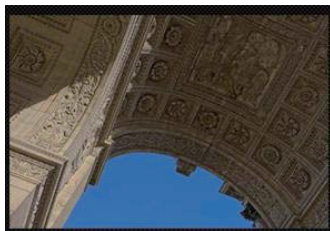Underexposed   Normal exposure   Overexposed

HDR Mode

WDR- Wide Dynamic Range

For high light, intense sunlight, or environments with artificial light, WDR allows smart algorithm to correct shadows surrounding a subject. This makes it easier to distinguish details in darker areas of the photo.

With WDR enabled video, clear images are provided when there are not only very bright areas, but also very dark areas in the camera's field of view. (The following pictures are an example of WDR.)

Without WDR

With WDR

MINOLTA®